

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS**

STATE OF MICHIGAN, STATE OF)	
MINNESOTA, STATE OF OHIO, STATE)	
OF WISCONSIN, and)	
COMMONWEALTH OF)	
PENNSYLVANIA,)	
)	
Plaintiffs,)	Case No. 1:10-cv-04457
v.)	
)	Hon. Robert M. Dow, Jr.
UNITED STATES ARMY CORPS OF)	
ENGINEERS and METROPOLITAN)	
WATER RECLAMATION DISTRICT OF)	
GREATER CHICAGO,)	
)	
Defendants.)	

**THE COALITION TO SAVE OUR WATERWAYS' MEMORANDUM IN SUPPORT OF
MOTION IN LIMINE TO STRIKE THE AFFIDAVIT AND TO EXCLUDE THE
TESTIMONY OF PLAINTIFFS' EXPERT DAVID M. LODGE**

The Coalition to Save Our Waterways (the "Coalition"), by and through its undersigned counsel, and for its Memorandum in Support of Motion in Limine to Strike the Affidavit and to Exclude the Testimony of Plaintiffs' Expert David M. Lodge, states as follows:

INTRODUCTION

In their motion for preliminary injunction, the States of Michigan, Minnesota, Ohio, Wisconsin and the Commonwealth of Pennsylvania (collectively, "Plaintiffs" or the "States") rely heavily on the affidavit of David M. Lodge ("Dr. Lodge") and certain findings from his eDNA testing for Asian carp in the Chicago Area Waterways System ("CAWS") to support their argument that imminent irreparable harm will result if this Court denies their motion for preliminary injunction and allows the Chicago locks to remain open. However, as discussed at length in the Coalition's and fellow intervenor Wendella Sightseeing Company Inc.'s ("Wendella") responses to Plaintiffs' motion for preliminary injunction, the eDNA evidence

presented in Dr. Lodge's affidavit and to which Dr. Lodge is expected to testify in the preliminary injunction factual hearing tentatively set for August 30, 2010, is demonstrably unreliable under Federal Rule of Evidence 702. Therefore, for the reasons stated in its Response in Opposition to Plaintiffs' Motion for Preliminary Injunction and the reasons stated more fully below, the Coalition respectfully requests that this Court strike the affidavit of Dr. Lodge from evidence and disallow him from testifying at the preliminary injunction hearing.

BRIEF STATEMENT OF RELEVANT FACTS

I. The Attempt to Use eDNA to Detect Asian Carp.

As part of its efforts to respond to Congress' 2009 direction to consider further actions to respond to the Asian carp issue, United State Corps of Army Engineers (the "Corps.") sought a means of quickly identifying the presence of Asian carp and worked with Dr. Lodge of the University of Notre Dame to develop eDNA as a potential methodology. "eDNA" refers to the testing of ambient materials (in this case, river water) for the presence of the DNA of a target species to determine if that species is present. Dr. Lodge based his methodology in part on the work of Gentile Francesco Ficetola from the Laboratory of Alpine Ecology, University of Grenoble. Dr. Ficetola's paper on the use of eDNA has been referenced by Dr. Lodge.

In 2009, Dr. Lodge and his team began sampling the Chicago Area Waterways System ("CAWS") for Asian carp using an eDNA methodology similar to the one that Dr. Ficetola developed. In December of 2009 and in response to positive eDNA findings near the O'Brien Lock and Dam, the Asian Carp Regional Coordinating Committee ("ACRCC") initiated an intense netting and sampling program. This activity collected no Asian carp. *See* U.S. Army Corps of Engineers, Dispersal Efficacy Study (June 2010) (hereinafter "June 2010 Efficacy Study") at 55-56, attached as Exhibit 1 to the Coalition's Response in Opposition to Plaintiffs' Motion for Preliminary Injunction. During the winter and spring of 2010, the group continued to

conduct fish recovery operations particularly near outlets of warm water where they would expect to find fish congregating. No Asian carp were identified in this activity. *Id.* In April 2010, in response to eDNA findings in the North Shore Channel, the group initiated fish netting programs, again without finding Asian carp. *Id.* Finally, in May of 2010 in response to another positive eDNA finding, the ACRCC closed O'Brien Lock and Dam and performed another fishkill and fish recovery operation. More than 100,000 pounds of fish were recovered and identified but not one Asian carp. *Id.*

As a result, despite its efforts to develop an effective eDNA methodology, the Corps concluded, based on its actual experience, that it was no longer willing to identify eDNA as a quantitative method for locating Asian carp. In its Dispersal Barrier Efficacy Study, the Corps stated: "Given that eDNA is an emerging technology being applied in a field setting for the first time, USACE cannot conclude that water samples testing positive for eDNA evidence confirms the presence of Asian carp. *Id.* at 22.

In their copious exhibits in support of their preliminary injunction motion, Plaintiffs have proffered no scientific document prepared by Dr. Lodge or his team regarding their eDNA collection efforts in the CAWS for the simple reason that no such document has been made public. Indeed Dr. Lodge has refused to make public any of his collection data, pending some future publication in a scientific journal. As a result, despite the significant efforts at public outreach made by the Corps and the ACRCC, none of the intervenor defendants have been able to view or analyze Dr. Lodge's data, despite numerous requests. As a result, the only information publicly available is Dr. Lodge's affidavit before the Supreme Court, his testimony before Congress, and several maps purporting to show long reaches of the CAWS at some point in which Asian Carp eDNA has been identified. Dr. Lodge acknowledged in his Supreme Court

affidavit in January 2010, his eDNA methodology is new and has not been published or subject to any peer review. Dr. Lodge Aff. ¶ 14. That remains the case.

Recently, Dr. Ficetola, reviewed the publicly available information regarding the sampling efforts conducted by Dr. Lodge and his team regarding the potential detection of eDNA of two species of Asian carp in CAWS and his sworn statement as to that review was included in Wendella's Motion in Opposition to Plaintiffs' Preliminary Injunction Motion and is attached hereto as Exhibit A. Based on his review of the very limited information available to him, Dr. Ficetola concluded that several issues remain in the application of eDNA to the analysis of Asian carp distribution. *Id.* ¶ 32. First, Dr. Lodge has not disclosed the length of the eDNA fragments used to form the basis of the sampling study; therefore, an assessment cannot be made regarding the likelihood of false positive and false negative results. *Id.* ¶ 33. Second, the calibration of the method is not complete and, without a calibration study, there is no way to assess the number of Asian carp, if any, in the CAWS. *Id.* ¶ 34. Experimental tests are needed to relate the frequency of positive and negative sampling results to the abundance or absence of Asian carp. *Id.*

ARGUMENT

I. Standard of Review.

As this court noted in the hearing on August 16, courts allow some flexibility regarding evidentiary standards in the context of preliminary injunction motions, *see SEC v. Cherif*, 933 F.2d 403, 412, n. 8 (7th Cir. 1991). Yet this flexibility does not extend to scientific evidence which is strictly controlled by Rule 702 of the Federal Rules of Evidence and the requirements of *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993). *See Autotech Tech L.P. v. Automationdirect.com*, 471 F.3d 745, 749 (7th Cir. 2006) (affirming district court's decision to exclude expert evidence at preliminary injunction hearing because it did not meet the *Daubert* standard); *see also Charter Nat'l Bank & Trust v. Charter One Fin.*, No. 01-905, 2001 U.S. Dist.

LEXIS 13919, at *19-20 (N.D. Ill. Sept. 4, 2001) (excluding expert evidence at preliminary injunction hearing because witness did not qualify as an expert). Instead, the court acts as a gatekeeper to ensure that an expert's testimony is reliable. *See Am. Honda Motor Co. v. Allen*, 600 F.3d 813, 816 (7th Cir. 2009).

Under *Daubert*, a district court must determine “whether a given expert is qualified to testify in the case in question and whether his testimony is scientifically reliable.” *Id.* While Dr. Lodge's qualifications are not at issue here, “even the most supremely qualified expert cannot waltz into the courtroom and render opinions unless those opinions are based upon some recognized scientific method and are reliable and relevant under the test set forth by the Supreme Court in *Daubert*.” *Id.*

Daubert requires the assessment of four factors in evaluating the reliability of expert testimony: (1) whether the scientific theory can be or has been tested; (2) whether the theory has been subjected to peer review and publication; (3) the theory's known or potential rate of error when applied; and (4) whether the theory has been generally accepted in the relevant scientific, technical, or professional community. *Fuesting v. Zimmer, Inc.*, 421 F.3d 528, 534 (7th Cir. 2005) (citing *Daubert*). In addition, the 2000 Advisory Committee's Notes to Federal Rule of Evidence 702 suggests other benchmarks in assessing reliability, including whether maintenance standards and controls exist. *Id.* As the proponent of Dr. Lodge's testimony, Plaintiffs have the burden of establishing that his testimony is reliable under *Daubert*. *Id.* This is a burden Plaintiff cannot meet.

II. This Court Should Strike the Affidavit and Exclude the Testimony of Dr. Lodge Because It Does Not Meet the Standard for Reliability Under *Daubert*.

Dr. Lodge's eDNA findings meet absolutely none of the standards necessary to present scientific information in a court proceeding. As Dr. Lodge acknowledges in his Supreme Court

filing, his eDNA methodology is new and has not been published or subject to any peer review. *See* Dr. Lodge Aff. ¶ 14. Furthermore, Dr. Lodge has refused to make any of his underlying data public, pending publication of a technical paper at some point in the future. As a result, his methods cannot be tested by others and none of the other stakeholders in this process have been able to evaluate whether the conclusions drawn from the data can stand any scrutiny. Indeed, the founder of the eDNA methodology, Dr. Ficetola, has opined that the lack of data—particularly the actual length of eDNA fragments Dr. Lodge and his team used as primers for their sampling—makes it impossible for any peer to evaluate Dr. Lodge’s work. *See* Dr. Ficetola Aff. ¶ 20.

Similarly, because there is no data, there also is no available known or potential rate of error. ACRCC’s report from May, 2010 states that of 221 eDNA samples taken and processed during 2010, only two tested positive. *See* United States Coast Guard, Asian Carp Control Strategy Framework (May 2010) at ES-1, attached as Exhibit 8 to the Coalition’s Memorandum in Opposition to Plaintiffs’ Motion for Preliminary Injunction. Without some type margin of error it is impossible to place these findings in any context or rely on them for any scientific conclusion.

Even more damning is the fact that despite the millions of dollars and hundreds of man hours spent on fishkills and other fish sampling activities in response to the eDNA findings, not one Asian carp was ever found in the CAWS above the barrier. Many of these sampling efforts were tied directly to positive eDNA findings, including the net sampling in the Calumet River in December, 2009, the net sampling in the North Shore Channel in April 2010, and most spectacularly, the latest fishkill at the O’Brien Lock in May 2010. This activity killed more than 1,000 individual fish, not one of which was an Asian carp.

As a result, due to the lack of actual data and the lack of actual field confirmation, the eDNA approach cannot be said to have any acceptance in the relevant community. Despite its efforts to develop this methodology, the Corps concluded, based on its actual experience, that it is no longer willing to identify eDNA as a quantitative method for locating Asian carp. In its Dispersal Barrier Efficacy Study, the Corps stated: “Given that eDNA is an emerging technology being applied in a field setting for the first time, USACE cannot conclude that water samples testing positive for eDNA evidence confirms the presence of Asian carp. June 2010 Efficacy Study, *supra*, at 22. In short, the scientific methodology of eDNA as used here cannot withstand *Daubert* scrutiny and the court should reject any conclusions or statements based on eDNA findings.

While the States claim that an EPA audit of Dr. Lodge’s laboratory supports eDNA methodology, they completely misstate both the purpose of the audit and its findings. According to the language of the Audit itself its purpose was to evaluate the laboratory procedures and their quality control. *See* Laboratory Audit Report, Lodge Laboratory, Department of Biological Sciences, University of Notre Dame, February 5, 2010, at 9. The EPA specifically disclaimed any determination of the validity of eDNA as a methodology for identifying Asian carp in the field. The EPA specifically stated: “This audit did not address the interpretation of [eDNA] results in regards to the presence or absence, proximity, or abundance of silver or bighead carp (the presumed source of the eDNA).” *Id.* In addition, the Audit did not involve reviewing or otherwise verifying specific analytic results, but rather focused on evaluating the reliability of the eDNA surveillance method based on observation and review of the sampling and analytic procedures employed by the laboratory.” *Id.* at 9-10. As a result, the copies of website pages

with maps purporting to show the locations where Dr. Lodge claims his data showed positive eDNA findings are neither data nor evidence.

CONCLUSION

We urge the court to find that Dr. Lodge's eDNA findings are inherently unreliable and that he should not be allowed to testify either in person or through his affidavit. Dr. Lodge's eDNA findings are central to Plaintiffs' claims that they face irreparable damage. Plaintiffs present these findings as irrefutable scientific evidence that the Asian carp are close to entering Lake Michigan, that the current and planned measures to halt Asian carp migration are ineffective and that the only solution is their drastic demand to close the CAWS locks. Because Plaintiffs have made these apparently objective findings the absolute capstone of their case, this court must evaluate, as a preliminary matter, whether these findings actually meet the test for reliability enunciated by the Supreme Court and the Federal Rules of Evidence. Yet, as set out in this motion, Plaintiffs cannot meet their burden of establishing that Dr. Lodge's testimony is reliable under *Daubert* and Federal Rule of Evidence 702. Dr. Lodge has not and cannot present any data or identify a margin of error in support of his findings and his data and his methods as applied here have not been subject to any peer review, let alone acceptance by the broader scientific community.

For these reasons, the Coalition to Save Our Waterways respectfully requests that this Court enter an order (1) granting its motion in limine; (2) striking the affidavit of Dr. Lodge from evidence; (3) disallowing Dr. Lodge to testify at the preliminary injunction hearing; and (4) providing any further relief this Court deems just and necessary.

Dated: August 20, 2010

Respectfully submitted,

THE COALITION TO SAVE OUR
WATERWAYS

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 20th day of August, 2010, a copy of the foregoing *Coalition to Save Our Waterways Memorandum in Support of Motion in Limine to Strike the Affidavit and Exclude the Testimony of Plaintiffs' Expert David M. Lodge* was filed electronically. Notice of this filing will be sent to the following attorneys by operation of the Court's electronic filing system:

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